



Fuel Tank Cleaning System



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PROJECT OVERVIEW

The purpose of this project was to replace and improve an existing fuel tank cleaning system at Transfer Flow with a more efficient and effective system.

The constraints of the project included:

- The design must conform to OSHA standards
- Machine must fit in footprint of the old fuel tank cleaning machine
- Must be more efficient and effective than old machine

The objectives of the project included:

- Remove maximum amount of debris and water from tanks being cleaned
- Reduce time needed to clean each tank
- Cost less than \$10,000 in materials

HOW IT WORKS:

The Fuel Tank Cleaning System will incorporate a holding tank and pumping system used to fill tanks to be cleaned with a soapy water mixture, once half way full, the water mixture is then agitated, and finally vacuumed out.

HOLDING TANK & PUMPING SYSTEM



A 200-gallon, insulated holding tank with heaters was built for the soapy water mixture that is heated to above 100°F. The water is heated in order to reduce foam. A 1.5 hp centrifugal pump is used to fill a tank to be cleaned at a rate of 60gpm, while a jet pump is used for water removal. A sand filter is used for filtration of debris removed from the tanks.

AGITATION TABLE

A table rocked back and forth with two, 2-inch bore hydraulic cylinders was designed in order to agitate the water inside the tank to further help in removing debris. Tanks are rocked back and forth at a rate of 18 cycles per minute with an incline of 10 degrees for 2 minutes. The table can then be tilted to pool water into a corner for ease in water removal.



PROJECT OUTLOOK

The Fuel Tank Cleaning System will dramatically reduce the time to clean each tank while also extending time in between maintenance, this will help Transfer Flow to save in production costs. The new system has also proven to be more effective in removing debris from the tanks.

CONTROL PANEL



The control panel was designed with simplicity in mind. ON & OFF switches are clearly labeled to avoid confusion during operation

SYSTEM FLOW

